Overtime Utility Estimate Agency Training - 2014

What is an Overtime Utility Request?

Any request for HVAC/Lighting beyond the services provided within a tenants Occupancy Agreement (OA).

* Standard OA – References the PBS Customer Guide to Real Property(CGRP):
  * Building Services: Building services to be provided are outlined in the PBS Customer Guide to Real Property. Additional or upgraded services beyond those identified are provided by PBS on a reimbursable basis.
* PBS CGRP - Chapter 3, Page 29: Standard Operation for Utilities
  * What does GSA mean by standard operation for utilities?
    * Standard utilities are based on a one-shift operation. If you operate 24 hours per day, we provide one 10-hour shift, 5 days a week (Monday through Friday). Service above this standard is reimbursable. Submit above standard utility requests to our facilities staff for approval.

Examples of OU Requests

* 24/7 Tenant Server Room
* Special Event
* Additional Hours for Tenant Operations Night-time or Weekend
* Agency Owned Equipment

Process for OU Requests

* Tenant requests overtime utility (OU) services
* GSA creates an OU estimate within RETA
* An RWA is Generated/Received for the OU Services
* GSA programs the building for the OU request.
* If the Tenant exhausts the hours of funded OUs, additional funding is required prior fulfilling any new OU requests.

Importance of OU Estimating Accuracy

* If OU estimates lack accuracy…
  * A funding shortfall will negatively impact the Field Office's budget, BA61
  * Utility bills will not be covered by our tenant's rent bill, which leads to poor performing buildings
  * Tenants are apt to order more OUs at a lower cost, more energy is used, which negatively impacts energy saving measures
  * Additional wear and tear on equipment

Importance of OU Estimating Consistency

* National Review of OU Estimates:
  * Amount of Equipment
    * Charging for entire zone
  * Heating & Cooling Season
  * Conversion Factors
  * 24/7 Server Rooms
    * Building and Agency HVAC equipment
    * Agency Program Equipment – servers, etc.

Training: Gathering Customer OU Need

Type of Space – Tenant Space, Common Area, Server Room, or Border Station. Is it owned or leased space?

Location(s) – Floors, Entire Suite, or Single Office

Date(s): – Single Day, Multiple Days

Hour(s) - # of Hours, Repeating, or Anytime

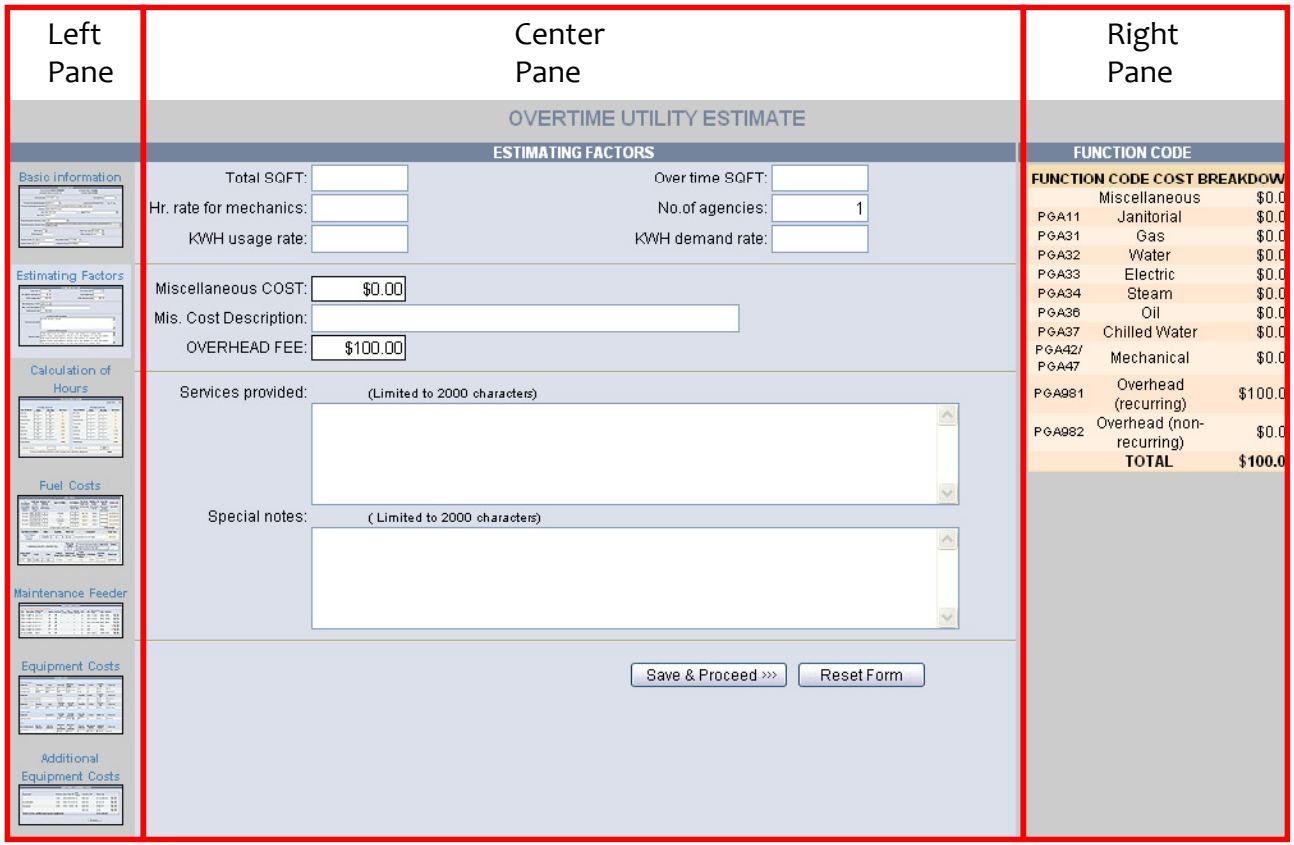
Type of Utility – Lighting, HVAC, or Both

Critical Piece: Now that we gathered the need, how do we begin drafting the OTU Estimate?

Wizard Page Layout

All Wizard pages are made up of three panes

- **Left Pane** displays read only thumbnails of each page in the estimate with mouse over preview capability and one click direct access to the highlighted page
- **Center Pane** is the main wizard page where all data entry and editing is performed
- **Right Pane** displays a read only Function Code summary of the estimate that dynamically updates as data is entered

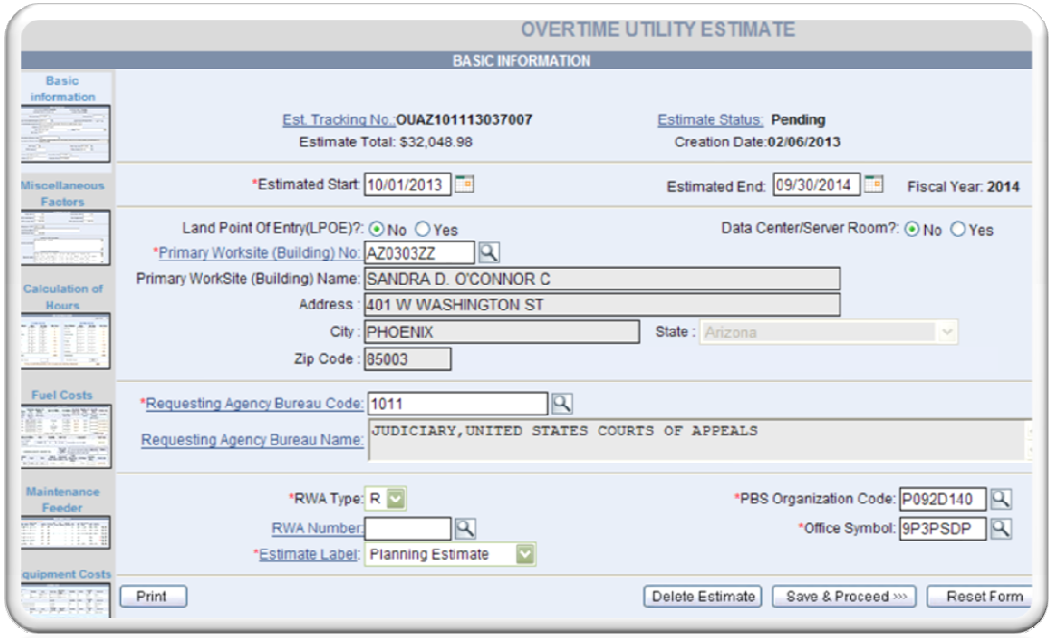


Training: Input of Basic Information into RETA

Create an OU estimate within RETA, and begin populating the Basic Information page.

Notes:

- Basic Information page will allow us to enter in the Start and End dates of an estimate, type of estimate (data center, LPOE, office space, etc) It will also allow us to label the estimate as Planning, OA, etc..



Critical Path: Now that the OU estimate is started, what data needs to be populated within the estimate?

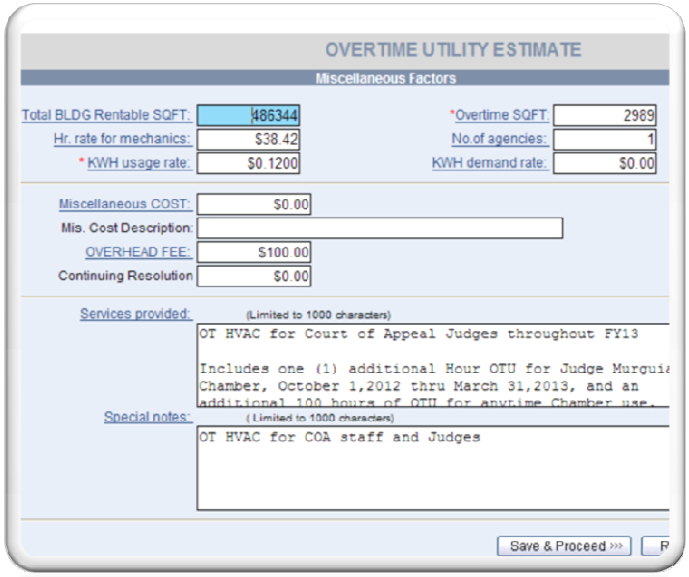
Estimate Labeling

* Estimate Labels (**helps us report better!**)
  * **OA** – These are used to let us know that there is Reimbursable income coming in thru the OA instead of the RWA for these OU services. We work with Finance to get a dump of how much we collect every month via the OAs.
  * **OU in Leased Space** – This label is used to let us know the estimate is for Overtime Utilities in leased space. The majority of the time these will be with an F or N type RWA. We are working on the Policy document that outlines what minimal information we need in the estimate for these.
  * **Child Estimate** – This is when we have multiple estimates going into one RWA. We create all the Child Estimates first, and then roll them into a Master estimate.
  * **Master Estimate** - This is the estimate that we roll all of the Child Estimates into. There should be an RWA associated with each Master estimate.
  * **Planning Estimate** – Customer asked for a what would it cost estimate to see if they could get funding for it. We save these just in case they want to use it later, so we don't have to re-create it.
  * **Stand Alone Estimate** – There's a one to one match with the RWAs.

Training: Input of Miscellaneous Factors (1 of 3)

Input the following into the Miscellaneous Factors page of an OU estimate:

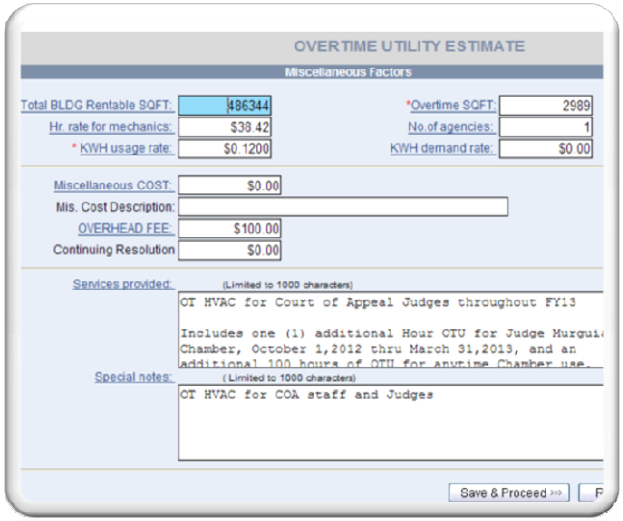
- **BLDG Rentable SqFt** – Found within Asset Business Plan (ABP) application in PBS Portal
- **Overtime Square footage –** The overtime square footage used refers the amount of area that needs to be cooled or heated for the overtime utility request. ***This may be more than the actual square footage requested by the customer.*** *Important*
- **Hr. Rate for Mechanics** – Input the Straight Time Rate from "Section B" of the building O&M Contract.
- **# of Agencies** - Special care must be taken when you enter the number of agencies sharing usage. These costs must be split between agencies if these agencies are working the same hours and if they are served by the same equipment.



Training: Input of Miscellaneous Factors (cont. 2 of 3)

Other items inputted into the Miscellaneous Factors page of an OU estimate:

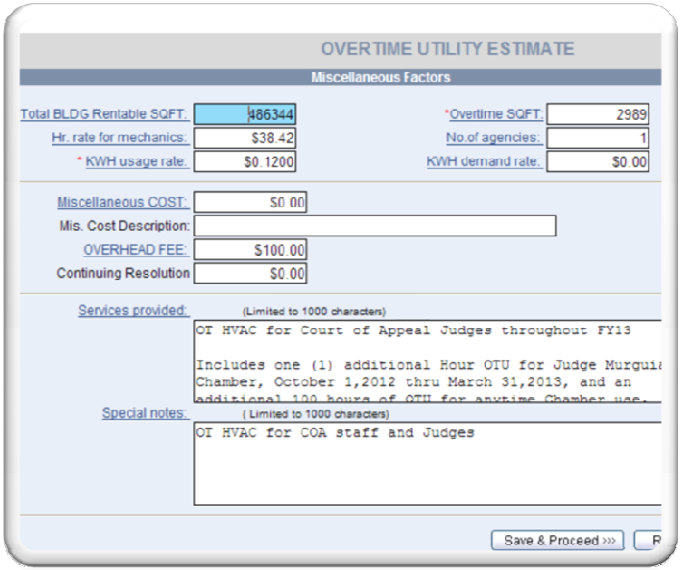
- **KHW Usage Rate** – found within EUAS. Pull prior year unit cost.
- **Miscellaneous Cost** - Used in a variety of cases; always use description field to explain what it is being used for.
  - Ex: When bundling a group of estimates together, you can put the total in the Miscellaneous field and in the services provided field, you can list all the other OU estimates that make up that consolidated estimate.



Training: Input of Miscellaneous Factors (cont. 3 of 3)

Final items within the Miscellaneous Factors page of an OU estimate:

- **OVERHEAD FEE** – For virtually all overtime utility requests, the overhead fee will be $100.00. However, if an N type RWA is used, then the sliding scale overhead would be applied.
- **Services Provided** – The Services Provided field gives the user the space to enter any detailed description of the services if desired. **Users should be as specific as possible.**
- **Special Notes** - This section gives the user an opportunity to record any relevant data such as a more detailed description of the space or anything else the user feels is important to remember.



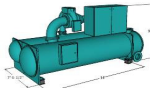
Critical Path: The Basic Information and Miscellaneous Factors are both complete, but how do we figure out what equipment to include, how hard the equipment runs (Load/Runtime), and energy spent providing the OU request?

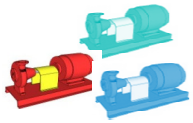
Training: The Location and Type of Space

When a request is received, the estimator must first determine where the request is, and then determine what equipment is needed to fulfill the request.

Scenario: Agency ABC Requests HVAC for a full 8hrs (Sat. 9AM-5PM)

- The space ABC occupies is 3000 sqft, Located on the 3rd Floor
- Agency ABC does not have dedicated equipment for HVAC.
- Agency ABC is within a HVAC Zone for the entire 3rd Floor, 18,000 sqft(Use this SqFt in Misc Factors Page, as Overtime SqFt). The 3rd Floor HVAC Zone is supplied by the following equipment…
  - 600 Ton Chiller
  - 600 Ton Tower w/ 50Hp motor
  - One (1) - Main Handler Unit 600 Hp
  - Primary Pump (20 Hp), Secondary Pump (50Hp), and Condenser Pump (75Hp)

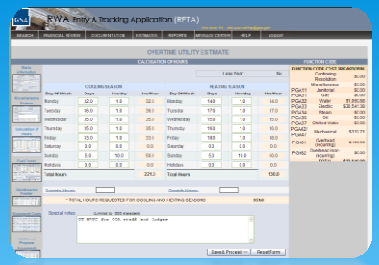




Helpful Tip:
Imagine the Building is a Tree, and your Customer is the Leaf. For OUs, we estimate and charge for the cost to provide services through the branches of the building HVAC system to the Agency. Every piece primary building equipment used to provide HVAC to that customer space needs to be included within the OU estimate.

Critical Path What hours are we going to be using?

FY14 Calculation of Hours



After determining which months are considered Heating and Cooling for your building utilizing EUAS, input the amount of hours and days of OUs requested by the customer into the Calculation of Hours page of your OU estimate within RETA .

Note: If the estimate is for a computer room or other location where a package unit is being used on a daily basis throughout the year, all of the hours should be recorded in the Cooling Season and a note explaining this should be added to the "Special Notes" section on the Miscellaneous Factors page.

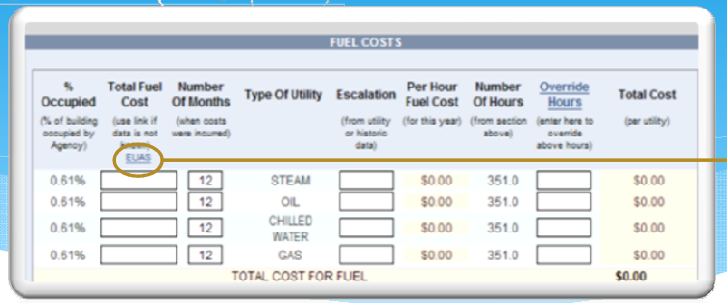
Months of the Year (Oct. 2014 thru Sept. 2015)													
Days of the Week	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total Days
Monday	3	4	5	3	3	5	4	3	5	4	5	3	47
Tuesday	4	3	5	4	4	5	4	4	5	4	4	5	51
Wednesday	5	4	5	4	4	4	5	4	4	5	4	5	53
Thursday	5	3	3	4	4	4	5	4	4	5	4	4	49
Friday	5	4	4	5	4	4	4	5	4	4	4	4	51
Saturday	4	5	4	5	4	4	4	5	4	4	5	4	52
Sunday	4	5	4	4	4	5	4	5	4	4	5	4	52
Holidays	1	2	1	2	1	0	0	1	0	1	0	1	10
Total Days Per Month	31	30	31	31	28	31	30	31	30	31	31	30	

24/7 Server Room: Total of Hours in FY14 = 8760

Critical Path: Building equipment takes fuel to run, how do we account for types of fuels such as Steam, Oil, Chilled Water, and Gas. (Remember: We already inputted the utility cost for Electricity into the Misc. Factors page.)

The Input of Fuel Costs (1 of 3)

If Steam, Oil, Chilled Water, or Gas is purchased to run the equipment needed for the OU request, use the Fuel Cost page to include the expense.



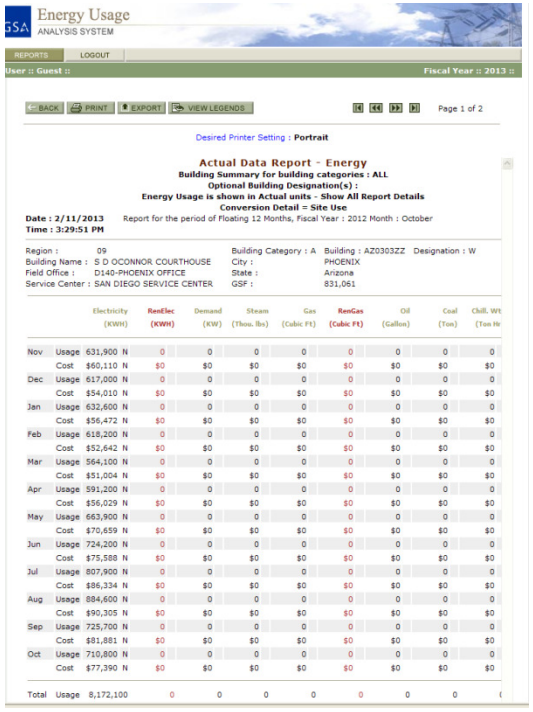
For example, if a gas boiler is needed to provide heat to a given area, then the total gas cost for the previous year should be recorded. The program will calculate the per hour fuel cost based on the building's square footage, the square footage for the utility request, the previous year's fuel cost, the escalation factor and multiply that by the requested number of hours.

Helpful Tip: If you are unsure if any additional fuels are used within the building, Click on the "EUAS" link under "Total Fuel Cost" section. A window displaying the previous 12 months of fuel costs will automatically appear. If other fuels are applicable, the user will then enter this cost into the Total Fuel Cost field depending on the fuel used.

The Input of Fuel Costs (cont. 2 of 3)

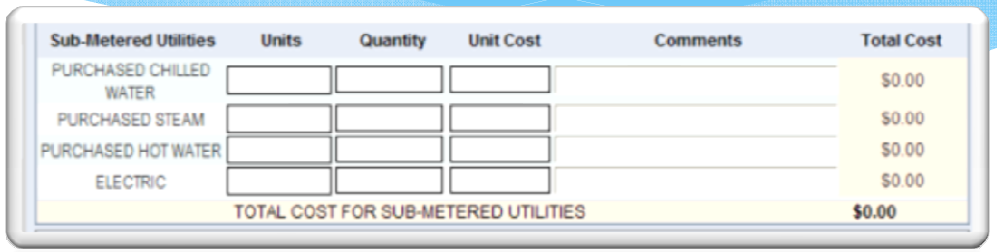
For each building, it is a best practice to verify which utility costs are applicable when creating an OU estimate. Below is a step-by-step process..Energy Usage Analysis System (EUAS) https://euas.gsa.gov

1. To use the Energy Usage Analysis System (EUAS) website:
2. Click on the link above or enter EUAS address into your internet browser's address (url) bar.
3. You do not need to log in, simply click on the REPORTS tab at the top of the page.
4. Click on ACTUAL DATA on the left side of the screen
5. Under Summary Type, select building, then Region, then State, then District, then building and then click on LOOKUP BUILDING
6. Select the building from the drop down menu
7. For Reporting Period, select Floating 12 Months. Select a month 2 months before the month you are preparing the estimate. For example, if you are preparing the estimate in June, then select April and then choose the current Fiscal Year. This will ensure you obtain a full 12 months of data.
8. Leave the Reporting Units field as Actual units and costs.
9. Click GENERATE REPORT
10. To print the report, use the green print button at the top or bottom of the report. Do not print using your browser.
11. To go back, use the green back button which also appears at both the top and bottom of the screen.



The Input of Fuel Costs (cont. 3 of 3)

Sub-Metered Utilities:
If the Overtime Utility request includes a space with sub-metered utilities, this section will calculate the costs using sub-meter readings.

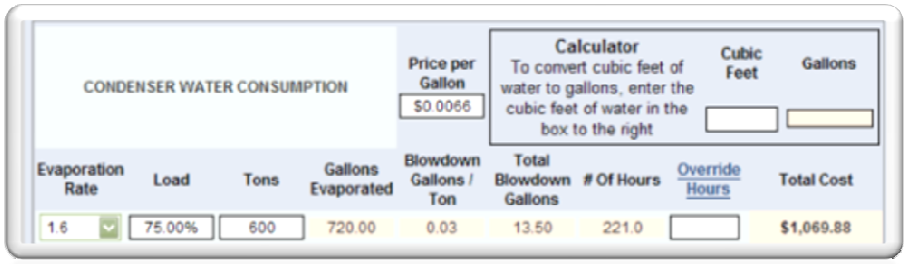


Sub-Metered Utilities	Units	Quantity	Unit Cost	Comments	Total Cost
PURCHASED CHILLED WATER					$0.00
PURCHASED STEAM					$0.00
PURCHASED HOT WATER					$0.00
ELECTRIC					$0.00
TOTAL COST FOR SUB-METERED UTILITIES					$0.00

CONDENSER WATER CONSUMPTION :

This section calculates the amount of water that evaporates during the chiller operation. This formula also includes a combined calculation for blow-down and drift which was taken from industry standards. Although the evaporation rate may change depending on temperature and humidity, we set the evaporation rate at 1.6 which is an average applicable to most chillers. However, the evaporation rate is higher for absorbers and should be set at 3.0. The user selects the value from the drop down list.

- ✓ The user also needs to check the cost per gallon of water for their building. Water bills typically put rates at the cost per 1000 gallons. So if a bill shows the rate at $3.50 per 1000 gallons, the user would change the Price per Gallon on the estimate to $0.0035.
- ✓ Energy Usage Analysis System (EUAS) https://euas.gsa.gov



CONDENSER WATER CONSUMPTION				Price per Gallon	Calculator: To convert cubic feet of water to gallons, enter the cubic feet of water in the box to the right	Cubic Feet	Gallons
				$0.0066			
Evaporation Rate	Load	Tons	Gallons Evaporated	Blowdown Gallons / Ton	Total Blowdown Gallons	# Of Hours	Override Hours	Total Cost
1.6	75.00%	600	720.00	0.03	13.50	221.0		$1,069.88

Critical Path: How do we input the equipment needed to accommodate an OU request, and what maintenance costs do we charge?

The Maintenance Feeder – Loading HVAC Building Equipment (1 of 5)

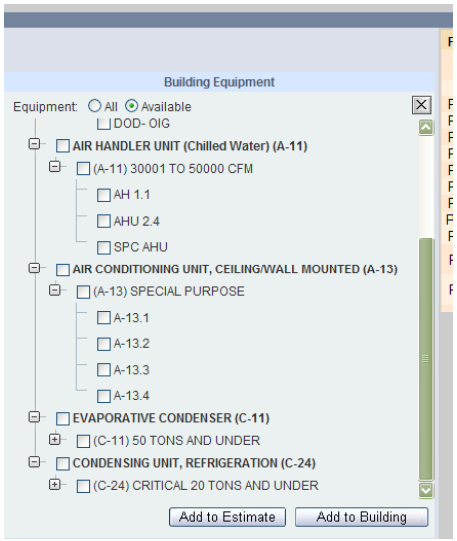
When equipment is operated over and above normal hours, it results in excess wear and tear and will require additional maintenance. For example, if an air handler is running after hours throughout the year, its filters will need to be changed more frequently and it may break down more often. The increased costs associated with the extra usage are calculated based on GSA standards and the existing maintenance mechanic hourly rate from the current contract.

Agency Owned VS Building Equipment

While GSA is frequently responsible for performing maintenance on agency program equipment, we will not pay for the replacement of that equipment. As a result, we do not need to charge the tenant agency for excess wear and tear since the majority of that equipment was designed to operate around the clock. For example, a computer room AC package unit is meant to operate 24 hours per day and the maintenance standards for that unit are based on the expectations that the unit will operate 24 hours per day. The agency should only pay for the exact maintenance hours. A piece of building equipment is normally designed to operate during normal building hours and the maintenance standards for this equipment is based on a limited number of operating hours per day. If it is necessary to operate this equipment over and above the normal 10-hour day, then there will be increased maintenance and more wear and tear which may reduce the life expectancy for that piece of equipment. In this instance, GSA needs to recover the additional maintenance costs.

The Maintenance Feeder – Loading HVAC Building Equipment

(cont. 2 of 5)



Creating the Building Equipment List within RETA:

- Each OU request will involve adding equipment into the estimate needed to facilitate the request, if the equipment needed for the OU request has yet to populated within RETA, use the "Add to Building" feature.
- The "Add to Building" feature will allow the estimator to locate the type of equipment needed, select the size of equipment, designate the equipment as "Building" or "Agency" owned, add the equipment number, equipment description, Conversion Rate / Efficiency Rating, and Size.
- Once a piece of building equipment is saved within an estimate, all future RETA estimates for that building number, will carryover the saved equipment.
- Adding information into the equipment description will help the Estimator remember what areas a particular piece of equipment supplies.
- Using the correct Conversion Rates is essential.

Conversion Rates

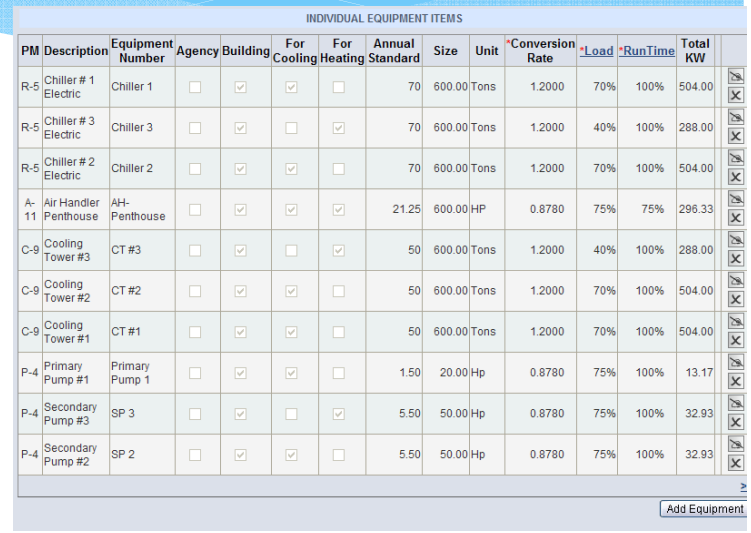
- **Horsepower (HP) = .878**
- **Ton = use the new Power Conversion document**
- **Kilowatt (Kw) = 1**
- **British Thermal Unit (BTU) = .000293**

The Maintenance Feeder – Loading HVAC Building Equipment

(cont. 3 of 5)

Adding/Setting Building Equipment into the OU estimate:

- Now that all applicable primary building equipment has been added to the Building , select the pieces of equipment needed for the OU request and use the "Add to Estimate" feature.



INDIVIDUAL EQUIPMENT ITEMS

PM	Description	Equipment Number	Agency	Building	For Cooling	For Heating	Annual Standard	Size	Unit	*Conversion Rate	*Load	*RunTime	Total KW
R-5	Chiller # 1 Electric	Chiller 1	☐	☑	☑	☐	70	600.00	Tons	1.2000	70%	100%	504.00
R-5	Chiller # 3 Electric	Chiller 3	☐	☑	☐	☑	70	600.00	Tons	1.2000	40%	100%	288.00
R-5	Chiller # 2 Electric	Chiller 2	☐	☑	☑	☐	70	600.00	Tons	1.2000	70%	100%	504.00
A-11	Air Handler Penthouse	AH-Penthouse	☐	☑	☑	☑	21.25	600.00	HP	0.8780	75%	75%	296.33
C-9	Cooling Tower #3	CT #3	☐	☑	☐	☑	50	600.00	Tons	1.2000	40%	100%	288.00
C-9	Cooling Tower #2	CT #2	☐	☑	☑	☐	50	600.00	Tons	1.2000	70%	100%	504.00
C-9	Cooling Tower #1	CT #1	☐	☑	☑	☐	50	600.00	Tons	1.2000	70%	100%	504.00
P-4	Primary Pump #1	Primary Pump 1	☐	☑	☑	☐	1.50	20.00	Hp	0.8780	75%	100%	13.17
P-4	Secondary Pump #3	SP 3	☐	☑	☐	☑	5.50	50.00	Hp	0.8780	75%	100%	32.93
P-4	Secondary Pump #2	SP 2	☐	☑	☑	☐	5.50	50.00	Hp	0.8780	75%	100%	32.93

Add Equipment

Critical Path:

The final input needed within the Maintenance Feeder is to set the Load and Run Time for each Piece of Equipment… How do we go about finding that data?

The Maintenance Feeder – Finding the Load & Runtime (cont. 4 of 5)

Scenario: Suite ABC Requests HVAC for a full 8hrs (Sat. 9AM-5PM)

- The Request is for June 2013 – **COOLING SEASON**
- Reference prior year O&M Contractor Daily Chiller Log Sheets to determine the HVAC equipment's average Load and Runtime for the season the request falls into.

Sandra Day O'Conner Daily Log Sheet for Chiller

Chiller#: 1 Date: 6-22-12

Range	1. Time Period	0700	0900	1100	1300	1500	1700
N/A	2. Outside air temp	85°	97°	100°	107°		
	3. Chiller On–Off	OFF	ON	ON	ON		
	4. Flat Plate On–off	OFF	OFF	OFF	OFF		
42°-52°	5. Chilled Leaving Water Temperature		42.0	42.1	42.2		
55°-62°	6. Chilled Entering Water Temperature		49.8	50.8	50.8		
62°-85°	7. Cond. Leaving Water Temperature		77.4	78.8	78.6		
57°-75°	8. Cond. Entering Water Temperature		71.2	71.7	71.5		
101°-138°	9. Oil Temperature		116.2	119.3	119.1		
25.01-42.0	10. Oil Pressure		40.2	39.8	39.0		
3.8–9.8	11. Evap. Refrigerant pressure		5.7	5.7	5.7		
10.1–15.3	12. Cond. Refrigerant Pressure		13.6	14.1	14.0		
1/8- to full	13. Refrigerant level site glass		1/2	1/4	1/4		
35–85	14. Chill Water Pressure In		82	78	79		
30–80	15. Chill Water Pressure Out		76	73	75		
1–10	16. Difference between in & out pressure		6	5	4		
–78	17. Cond. Inlet Pressure		72	70	68		
55–75	18. Cond. Outlet Pressure		64	62	60		
4–10	19. Difference between in & out pressure		8	8	8		
0%–110%	20. Motor Current Full Load Amps %		66 %	68%	78%		

Average Load = 68%

Critical Path: **Remember that you will need to look at what else is running off of that Chiller when its at 68% load, is it just the zone you are going to cool? Are there other zones, other estimates, other agencies?**

The Maintenance Feeder – How it works (cont. 5 of 5)

Once the Equipment is added to the OU estimate, the equipment is designated as "Agency" or "Building", placed within "Heating" or "Cooling" Season, and the Load / Runtime is set, then the system will make a separate calculation for each piece of equipment.

- The agency calculation will simply multiply the number of maintenance hours by the labor rate.
- The calculation for the building equipment takes into account the number of hours requested, and the number of hours that piece of equipment was meant to operate. It also subtracts the maintenance associated with the 10-hour day which GSA provides.
- Included with each piece of equipment are the annual maintenance man-hour requirements. The system will calculate the additional annual maintenance man-hours for the user.

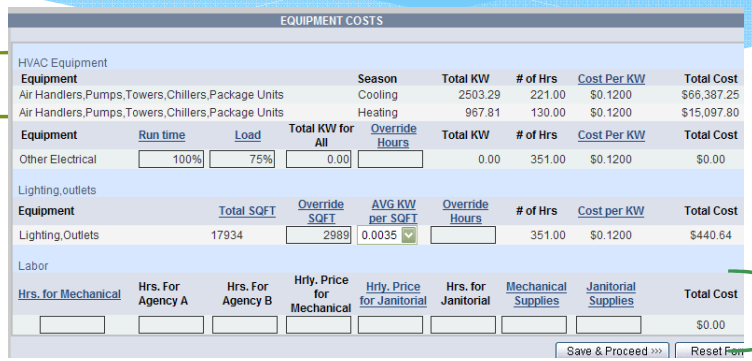
Equipment Costs – Other Electrical, Lighting/Outlets, & Labor

EQUIPMENT COSTS:

This section provides calculations for various types of equipment. The first area shows all the calculations for all your Air Handlers, Towers, Pumps, Chillers, and Package Units that you entered in the Maintenance Feeder. There is a separate line for the Cooling and the Heating Season.

EQUIPMENT OPERATED DURING COOLING SEASON AND EQUIPMENT OPERATED DURING HEATING SEASON

Each formula pulls the hours from the Cooling Season and Heating Season tables. This ensures that the agency is only charged for the equipment operating during each respective season. Simply fill in the equipment info into the Maintenance Feeder and the program will transfer the information over to the estimate.



OUTLETS & LIGHTING:

This section records the energy consumption from the lights and from the outlets in the affected area. This would be used when a request comes in for an agency to work after hours when its employees will be present. The user has the ability to override or change the square footage for this calculation by entering zero or a specific number of square feet in the Override SQ FT field. The user also has the ability to override or change the number of hours for this calculation by entering zero or a specific number of hours in the Override Hours field. The user can either choose a rate of .0035 or .0025. This rate includes not only the lighting, but also the additional items which are often used by the customer associates. Some examples are computers, printers, fans, radios, coffee makers, etc. The user should only choose .0025 if energy efficient lighting has been installed. ***This should be $0 when doing a data center OU estimate. ***

LABOR,

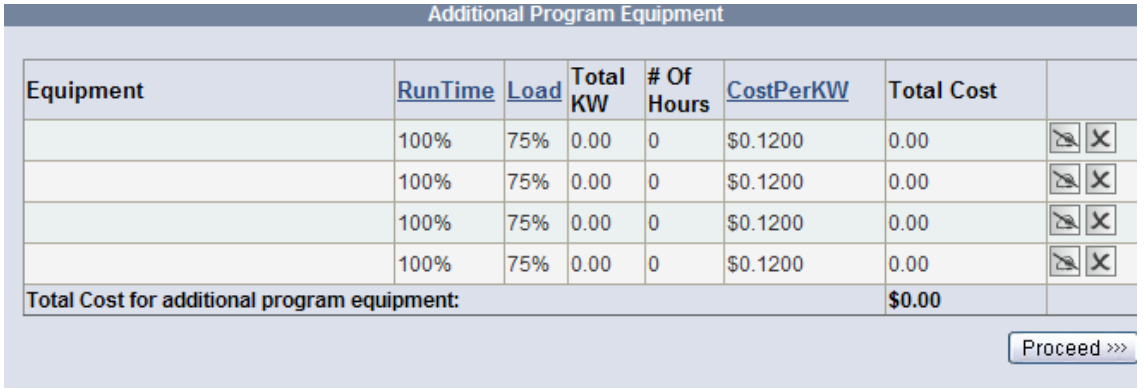
The user can enter the hours needed for either mechanic or janitorial workers. For example, if a mechanic is required to operate some equipment, his or her hours would also be recorded here. The hourly rates should be taken directly from the janitorial or mechanical contracts. Note: The mechanic labor rate refers to the cost of an engineer on an overtime basis which is taken from Section B of your mechanical contract.

Additional Program Equipment

ADDITIONAL PROGRAM EQUIPMENT: **Mostly used in a data center OU estimate **

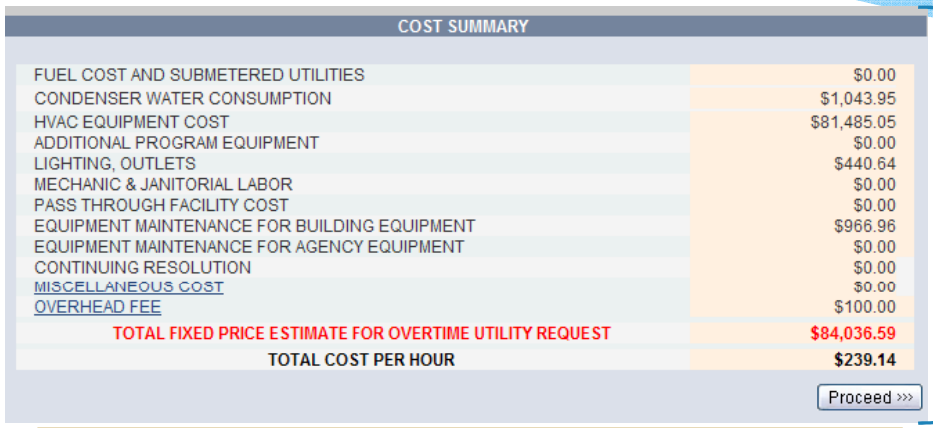
This is where the user can record information about any equipment not covered in previous sections.

For example, this is the place to record servers, UPS systems, etc. The number of hours can either be taken from the cooling and heating season tables or the user can enter another number based on an agency's request. Since you have the Total KW and the number of hours, you will most likely set the Run Time to 100% and Load to 75%.



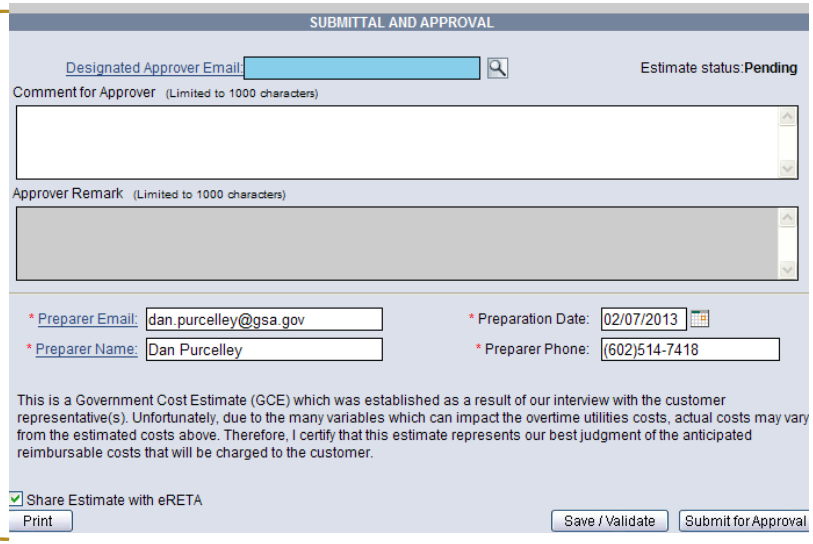
Cost Summary & Submit for Approval

All Critical Steps are now complete, Now to wrap up the OU estimate…



The **Cost Summary** page provides a snapshot of all the various costs included within the OU estimate under each category. The Cost Per Hour is a useful figure when communicating with the customer.

SUBMITTAL AND APPROVAL Page:
The user can click on the Magnifying icon or type in the email address of the designated approver if it is known. They can add in any comments for the approver, save and validate the estimate, and then submit the estimate to the Approver. The Approver will either approve or reject the estimate. They also have the option to enter in any comments that they feel are necessary when they are rejecting or approving the estimate. The Approver can not modify the estimate, so if there is something wrong with the estimate, it will have to be rejected and sent back to the estimator to correct and resubmit.



Server Room OU Estimating Guidance

How many hours do we charge for a 24x7 computer room?
According to the Pricing Guide, operation and maintenance and additional utility costs related to special tenant agency program equipment or fixtures are above standard service. Examples include a computer room containing items such as air handling units and/or power distribution module. Spaces such as these are not considered typical office space; therefore, operation, maintenance, and additional utility costs are reimbursable for all hours of operation.

Do we charge for lighting in Server Rooms?
For data centers/server rooms/computer rooms, the OUET policy is to zero out the lighting and outlets, right?
Yes, we zero out the lighting for the server rooms/computer rooms/data centers that are all 24x7,
as they fall under Above Standard Service and get charged at 8,760 hours.

Are we supposed to be charging for the electricity drawn by the servers and computer equipment, if so how are we to estimate this cost where separate metering devices are not present?
For calculating the KWs on the server and other equipment in the room, several regions have gotten together and come up with the following. Calculate the KW it takes to cool the room, and use that number of KW on the Additional Program Equipment page. Set the Load for 75% and the Runtime for 100%.

Ways to reduce Overtime Utilities

* Two quickest ways
  * Change core hours and extra hours needed (M-F)
  * Change temperature set points in server rooms

* Harder
  * Consolidate server rooms
  * Move server rooms off of Building Chilled Water loop.